



IBRO Workshop 2014



**Debrecen
16-17 January 2014
Hungary**

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Conference organizers

Ekho '94 Kft.

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The organizers are grateful to all sponsors and exhibitors whose financial support contributed to the success of the IBRO Workshop 2014.

General information

Congress venue

University of Debrecen (UD), Life Science Building, Debrecen, Egyetem tér 1.

Congress office, registration desk

UD, Entrance Foyer of Life Science Building.

Debrecen, Egyetem tér 1.

Opening hours:

Thursday, 16 January 2014 8:00-19:30

Friday, 17 January 2014 8:00-18:30

Oral presentations

Plenary lectures 45'+15' discussion

Symposia 120' including discussion

Poster presentations

The posters are exhibited in the Entrance Foyer of Life Science Building, UD. Size of poster boards: 90 cm (horizontal) x 150 cm (vertical).

Posters should be set up at 8:00-9:00 AM on the day of display and must be removed at the end of the day. Mounting material will be provided by the organizers.

The poster boards are numbered. The numbers of the boards correspond to the numbers of posters as they are listed in the program book.

Accommodation

According to previous reservation.

Please contact the congress office for further information (EKHO '94 Kft. Debrecen, Babits M. u. 8., Phone: 52-537-537).

Meals

During coffee and lunch breaks coffee and soft drinks will be offered. Price included in the registration fee.

Social events:

Cultural event (free for registered participants)

16 January, 20:00 Liszt Hall of the Faculty of Music, UD, Egyetem tér 1.

Get-together party

17 January, 19:30 Main Building of UD, Egyetem tér 1.

Program at a Glance

16 January

9:00 – 9:15 **Opening Ceremony**

9:15 – 10:15 **Plenary lecture I. Buzsaki Lecture**

Giacomo Rizzolatti (Department of Neuroscience,
University of Parma, Italy)

The mirror neuron mechanism and its role in understanding others

10:15 – 10:30 **Coffee break**

10:30 – 12:30 **Symposium I.**

Dissecting fear circuits in rodents

Moderator: Attila Losonczy (Department of Neuroscience,
Columbia University, New York, USA)

Francesco Ferragutti (Medical University, Innsbruck, Austria)

Novel insight into fear-mediated structural plasticity at GABAergic synapses of the basolateral amygdala

Marco Capogna (MRC Anatomical Neuropharmacology Unit,
Oxford, UK)

Hippocampal and somatosensory inputs to the basolateral amygdala:
role of identified GABAergic neurons

Norbert Hajos (Institute of Experimental Medicine,
Hungarian Academy of Sciences, Budapest, Hungary)

Structural and functional organization of inhibitory microcircuits in
the basolateral amygdala

Attila Losonczy (Department of Neuroscience, Columbia University,
New York, USA)

Dendritic inhibition protects hippocampal output during fear learning

12:30 – 15:30 **Poster session I. / Lunch break**

15:30 – 16:30 **Plenary lecture II.**

Hans Ulrich Zeilhofer (Institute of Pharmacology and Toxicology,
University of Zurich, Switzerland)
Cellular and molecular basis of spinal pain control

16:30 – 16:45 **Coffee break**

16:45 – 18:45 **Symposium II.**

Regeneration in the injured spinal cord – hopes and perspectives

Moderator: Antal Nógrádi (Department of Anatomy,
University of Szeged, Hungary)

Thomas Becker (Centre for Neuroregeneration,
University of Edinburgh, UK)
Successful spinal cord regeneration in adult zebra fish

Urszula Slawinska (Nencki Institute of Experimental Biology and
Institute of Biocybernetics and Biomedical Engineering, Warsaw,
Poland) and

Larry Jordan (Department of Physiology, Spinal Cord Research
Centre, The University of Manitoba, Winnipeg, Canada)
The role of serotonin in locomotor recovery after spinal cord injury
in rats

Laurent Vinay (Institute de Neurosciences de la Timone,
Marseille, France)
New perspectives for the treatment of spasticity and chronic pain after
spinal cord injury

Krisztián Pajer (Department of Anatomy,
University of Szeged, Hungary)
Recovery and regeneration in the injured rodent cord induced by
grafted stem cells: multiple mechanisms

20:00 - 21:30 **Cultural event**

17 January

9:00 – 10:00 **Plenary lecture III. IBRO Lecture**

Arthur Konnerth (Institute of Neuroscience, Technical University
Munich, Germany)
Dendritic integration in cortical neurons in vivo

10:00 – 10:15 **Coffee break**

10:15 – 12:15 **Symposium III.**

Complementary approaches in super-resolution microscopy:
new insights on synaptic organization and plasticity

Moderator: István Katona
(Institute of Experimental Medicine, Hungarian Academy of
Sciences, Budapest, Hungary)

Stefan Sigrist (Institute for Biology and Genetics, Freie Universit t,
Berlin, Germany)
Shedding light on the functional anatomy of presynaptic active zones

Valentin Nagerl (Institut Interdisciplinaire de NeuroSciences,
Universit  Bordraux, France)
Imaging the plasticity of living synapses at the nanoscale by
two-photon excitation STED microscopy

Thomas Blanpied (Department of Physiology, University of
Maryland School of Medicine, Baltimore, Maryland, USA)
Postsynaptic molecular organization and dynamics at single living
synapses resolved by PALM microscopy

István Katona (Institute of Experimental Medicine, Hungarian
Academy of Sciences, Budapest, Hungary)
Cell type- and synapse specific molecular imaging by STORM
microscopy in brain circuits

12:15 – 15:15 **Poster session II / Lunch break**

15:15 – 16:15 **Plenary Lecture IV**

T bor Hark ny

(Div. Mol. Neurobiol., Dept. Med. Biochem. Biophys., Karolinska Institutet, Stockholm Sweden)
Molecular interrogation of endocannabinoid signaling in relation to cannabis sensitivity of the developing nervous system

16:15 – 18:15 **Symposium IV**

The Versatile Roles of the Extracellular Matrix in the Central Nervous System

Moderator: Alan Alpar

(Department of Anatomy, Histology and Embryology, Semmelweis University, Budapest, Hungary)

Markus Morawski (Paul Flechsig Institute, Leipzig, Germany)
HyaluronanBased ECM-Implications for Physiological Functions

Heikki Rauvala (Neuroscience Center, University of Helsinki, Finland)

RAGE-mediated cell signalling in health and disease

Renato Frischknecht (Leibnitz Institute, Magdeburg, Germany)
Role of the Perisynaptic Extracellular Matrix in Synaptic Plasticity

Klára Matesz (Department of Anatomy, Histology and Embryology, University of Debrecen, Hungary)
Compensation Following Vestibular Disorder: Possible Role of the Extracellular Matrix

18:15 – 18:30 **Closing remarks**

19:30 - **Reception**

POSTERS

16 January

Molecular and cellular neurobiology: P1 – P17a

Sensory and motor systems: P18 – P56a

Behavior and cognition: P57 – P102i

17 January

Synaptic transmission and integration: P103 – P119c

Neuroendocrinology: P120 – P142a

Developmental neurobiology: P143 – P147a

Disorders of the nervous system: P148 – P181b

Methods: P182 – P200b

16 January

MOLECULAR AND CELLULAR NEUROBIOLOGY

P1. Functional Characterization of Genetically Identified Cholinergic Neurons in the Pedunculopontine Nucleus of Mice

Csilla Bordás, Áron Kőszeghy, Éva Kókai, Lilla Oláh, Péter Szücs, Balázs Pál

University of Debrecen, MHSC, Department of Physiology; Debrecen, Hungary

P2. Modulation of Action Potential-Triggered Dendritic Calcium Signals by Local Membrane Parameters in Dentate Gyrus Granule Cells

János Brunner, János Szabadics

Institute of Experimental Medicine – Hungarian Academy of Sciences, Budapest, Hungary

P3. Hippocampal sharp waves associated dendritic calcium transients and high frequency oscillations in parvalbumin interneurons

Balázs Chiovini^{1,2}, Gergely F. Turi^{1,4}, Dénes Pálfi², Attila Kaszás^{1,2}, Pál Maák³, Gergely Katona¹, Gábor Szabó¹, Gergely Szalay¹, Zoltán Szadai¹, Miklós Madarász², Szabolcs Káli¹, Balázs Rózsa^{1,2}

¹ *Two-Photon Imaging Center, Institute of Experimental Medicine, Hungarian Academy of Sciences, Budapest, Hungary.*

² *The Faculty of Information Technology, Pázmány Péter Catholic University, Budapest, Hungary.*

³ *Department of Atomic Physics, Budapest University of Technology and Economics, Budapest, Hungary.*

⁴ *Department of Neuroscience, Columbia University, New York, USA*

P4. Synthesis and in vitro pharmacological characterization of opiate-cannabinoid bivalent ligands

Szabolcs Dvoracsko^a, Robert Berkecz^b, Eva V. Varga^c, Csaba Tomboly^a, Attila Keresztes^a

^a *HAS-BRC, Institute of Biochemistry, Szeged, Hungary*

^b *University of Szeged, Department of Medical Chemistry, Szeged, Hungary*

^c *University of Arizona, Department of Pharmacology, Tucson, USA*

P5. Astrocytic activation, interleukin-1 receptor type 1 expression and interleukin-1 beta production upon glutamate and ATP treatment

Gajtkó Andrea, Holló Krisztina, Bakk Erzsébet, Hegedűs Krisztina, Antal Miklós

Department of Anatomy, Histology and Embryology, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary

P6. Subcellular distribution of voltage-gated potassium channels on CA1 pyramidal cells

Tekla Kirizs, Andrea Lőrincz, Zoltán Nusser

Laboratory of Cellular Neurophysiology, Institute of Experimental Medicine, Hungarian Academy of Sciences; Budapest; Hungary

P7. KCNQ4 is the Major M-Current Subunit of Cholinergic Neurons in the Pedunculopontine Nucleus (PPN)

Adrienn Kovács, Áron Kőszeghy, Csilla Bordás, Éva Kókai, Lilla Oláh, Péter Szücs, Balázs Pál

University of Debrecen, MHSC, Department of Physiology; Debrecen; Hungary

P8. Endocannabinoid Signaling Modulates Neurons of the Pedunculopontine Nucleus (PPN) via Actions on the Neuron-Glia Communication

Áron Kőszeghy^{1*}; Adrienn Kovács^{1*}; Tamás Bíró^{1, 2}; Zoltán Hegyi³, Miklós Antal³, Balázs Pál¹

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³*Department of Anatomy, University of Debrecen, Medical and Health Sciences Centre; Debrecen; Hungary*

**These authors contributed equally to this work.*

P9. Morphological analysis of electrophysiologically characterized glutamatergic cells in the Median Raphe

Tamás Laszlovszky, Andor Domonkos, Litsa Nikitidou, Csaba Cserép, Gábor Nyíri, Tamás Freund, Viktor Varga

Institute of Experimental Medicine of HAS, Budapest, Hungary

P10. Similarities and differences in presynaptic Ca²⁺ transients of hippocampal interneurons

Lőrincz T., Kiszfali M., Sós K.E., Vizi E.S.

Department of Pharmacology, Institute of Experimental Medicine – HAS, Budapest, Hungary

P11. GABA_A Beta3_Alpha5 Concatenate: Utility for Ligand-Binding and Functional Assays

Adrienn Pálvölgyi, Balázs Mihalik, Gábor Kapus, Miklós Végh, Katalin Pallagi, Lilla Papp, Ferenc A. Antoni

Laboratory of Molecular Pharmacology, Division of Preclinical Research, Egis Pharmaceuticals PLC, Budapest, Hungary

P12. Effect of resolvins on Transient Receptor Potential ion channel activation

M. Payrits, É. Sághy, É. Szőke, T. Bagoly, Zs. Helyes, J. Szolcsányi
Department of Pharmacology and Pharmacotherapy, Szentágotthai Research Center, University of Pécs; Pécs; Hungary

P13. A GABAergic communication pathway from individual neurons to glial cells

Márton Rózsa¹, Gergely Katona², Balázs Rózsa², Gábor Tamás¹

¹*Research Group for Cortical Microcircuits of the Hungarian Academy of Sciences, Department of Physiology, Anatomy and Neuroscience, University of Szeged, Közép fasor 52, Szeged, H-6726, Hungary*

²*Two-Photon Imaging Center, Institute of Experimental Medicine, Hungarian Academy of Sciences, Budapest, Hungary*

P14. Role of semicarbazide-sensitive amine oxidase (SSAO) inhibitors on TRP ion channel activation

É. Sághy¹, M. Payrits¹, É. Szőke¹, T. Bagoly¹, P. Mátyus², R. Deme², Zs. Helyes¹

¹*Department of Pharmacology and Pharmacotherapy, Szentágotthai Research Center, University of Pécs; Pécs; Hungary;* ²*Department of Organic Chemistry, University of Semmelweis; Budapest; Hungary*

P15. Effect of Enkephalin-Conotoxin Hybrid Peptides on Opioid Receptors

Reza Samavati¹, Adriano Mollica², Ferenc Zádor¹, Anna Borsodi¹, Sándor Benyhe¹

¹*Institute of Biochemistry, Biological Research Centre, Hungarian Academy of Sciences, Szeged, Hungary*

²*Dipartimento di Farmacia, Università di Chieti-Pescara “G. d’Annunzio”, Chieti, Italy*

P16. The role of state-dependent affinity and accessibility in sodium channel inhibitor effects

Szabo AK, Karoly R, Lenkey N, Mike A

Institute of Experimental Medicine, Budapest, Hungary

P17. Three-dimensional population Ca²⁺ measurement from *in toto* preparation during rhythmic oscillations reveals cell type specific firing properties

Szalay G.², Kaszás A.^{1,2}, Nagy R.^{1,2}, Katona G.², Maák P.³, Veress M.³, Spitzer K.^{1,2}, Pálfi D.¹, Chiovini B.², Bernard C.⁴, Rózsa B.^{1,2}

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⁴*INSERM U751, Faculté de Médecine de la Timone, Marseille, France*

P17a. Retinal aging in the diurnal Chilean rodent, *Octodon degus*

Szabadfi K.¹, Gabriel R.¹, Setalo Gy.Jr.², Tarragon E.³, Estrada C.³, Lopez D.³, Ros C.M.³, Reglodi D.⁴, Tamas A.⁴, Herrero M.T.³

Departments of ¹Experimental Zoology and Neurobiology, ²Medical Biology, ⁴Anatomy, PTE-MTA “Lendulet” Research Group, University of Pecs, Pecs, Hungary; ³Clinical and Experimental Neuroscience (NiCE) and Centro de Investigacion Biomedica en Red sobre Enfermedades Neurodegenerativas (CIBERNED), School of Medicine, University Jaume I and University of Murcia, Murcia, Spain

SENSORY AND MOTOR SYSTEMS

P18. Molecular dynamics study of the structural basis of dysfunction and the modulation of reactive oxygen species generation by pathogenic mutants of human dihydrolipoamide dehydrogenase

Ambrus A¹, Adam-Vizi V¹

¹*Department of Medical Biochemistry, Semmelweis University, Budapest, Hungary*

P19. Projection Neurons in the LSN and Lateral Spinal Lamina I Are Subject to Propriospinal Ascending Mono- and Polysynaptic Excitation

Zsófia Antal¹, Liliana Luz^{2,3}, Boris Safronov², Miklos Antal¹, Peter Szucs⁴

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²*Spinal Neuronal Networks, IBMC, Porto, Portugal*

³*Departamento de Biologia Experimental, FMUP, Porto, Portugal*

⁴*Department of Physiology, UD MHSC, Debrecen, Hungary*

P20. The role of different regimens of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) treatment in neurochemical changes of mice striatum

Mária Baranyi, Beáta Sperlág

Institute of Experimental Medicine, Hungarian Academy of Sciences, Budapest, Hungary

P21. Localization of CD26/DPP4 enzyme and the effects of its inhibitors in the rat spinal cord

Benjamin Barta¹, Shiva Kouhnavardi¹, Márk Kozsurek¹, Kornél Király², Erika Lukácsi¹, Csaba Fekete³, Zita Puskár¹

¹*Department of Anatomy, Histology and Embryology, Semmelweis University, Budapest*

²*Department of Pharmacology and Pharmacotherapy, Semmelweis University, Budapest*

³*Lendület Laboratory of Integrative Neuroendocrinology, KOKI, HAS, Budapest*

P22. TNF-alpha pretreatment improves the neuronal differentiation and integration of grafted embryonic spinal cord: a morphological study

Tamás Bellák¹, Krisztián Pajer¹, József Maléth², Antal Nógrádi¹

¹*Department of Anatomy, Histology and Embryology, Faculty of Medicine, University of Szeged, Szeged, Hungary*

²*First Department of Medicine, Albert Szent-Györgyi Clinical Centre, University of Szeged, Szeged, Hungary*

P23. Flickering Light Stimulation Affects Global Form Detection, but not Global Motion Detection

Gábor Braunitzer, Attila Nagy, Attila Öze, Tibor Nagy, András Pusztai, György Benedek, Szabolcs Kéri *University of Szeged, Faculty of Medicine, Department of Physiology, Szeged, Hungary*

P24. Lamotrigine is more effective than riluzole in rescuing motor unit numbers and muscle properties after sciatic nerve crush in neonatal rats

Cabaj A. M.¹, Sławińska U.²

¹*Institute of Biocybernetics and Biomedical Engineering PAS, Warsaw, Poland*

²*Nencki Institute of Experimental Biology*

P25. The influence of acoustic stimuli ranging from 81-120dB on the startle reflex in rat: determination of acoustic startle response threshold level

Cecília Csölle, István Gyertyán

Department of Behavioural Pharmacology, Richter Nyrt, Budapest, Hungary

P26. Endogenous vanilloids are putative activators of the trigeminal nociceptor complex: relevance to headache mechanisms

É. Deák, Á. Martonosi, G. Jancsó, M. Dux

Department of Physiology, University of Szeged, Szeged, Hungary

P27. Spinal expression of interleukin-1 receptor type 1 in an animal model of chronic inflammatory pain

László Ducza, Krisztina Holló, Erzsébet Bakk, Krisztina Hegedűs, Zoltán Hegyi, Klaudia Dócs, Miklós Antal

Department of Anatomy, Histology and Embryology, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary

P28. Kanamycin-induced changes in calcium-binding protein expression in the inner ear of wild type, heterozygous and homozygous pituitary adenylate cyclase activating polypeptide (PACAP)-deficient mice

B. Fülöp¹, A. Németh², K. Szabadfi³, B. Szalontai³, D. Reglődi¹, J. Farkas¹, P. Kiss¹, H. Hashimoto⁴, A. Baba⁴, R. Gábel³, A. Tamás¹

¹*Department of Anatomy, PTE-MTA „Lendület” PACAP Research Team,* ²*Department of Otorhinolaryngology,* ³*Experimental Zoology and Neurobiology, University of Pécs, Pécs, Hungary;* ⁴*Graduate School of Pharmacological Sciences, Osaka University, Osaka, Japan*

P29. Effect of unilateral labyrinthectomy on brevicin expression in the vestibular nuclear complex of the rat

Botond Gaál, Szilvia Kecskés, Amit Dattani, Einar Örn

Jóhannesson, Éva Rácz, Klára Matesz

Department of Anatomy, Histology and Embryology, University of Debrecen, MHSC, Debrecen, Hungary

P30. Integration of grafted embryonic motoneurons into the host spinal cord circuitry after lumbar 4 ventral root avulsion and reimplantation

László Gál^{1,2}, Gábor Márton², Antal Nógrádi², Urszula Slawinska¹

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P31. The relationship between the internal clock and reaction time

*Gábor H., **Murgia M., **Prpic V., **De Tommaso M., *Gábor J., **Agostini T.

** Institute of Physiology, University of Pécs, Pécs, Hungary*

*** Department of Life Sciences, University of Trieste, Italy*

P32. The nature of cortical layer 5 input to the basal ganglia recipient motor thalamus

Hadinger N., Bokor H, Acsády L

Institute of Experimental Medicine of the Hungarian Academy of Sciences, Budapest, Hungary

P33. Evoked responses elicited by acoustic and MGB electrical stimulation in the cat

Domonkos Horváth, Richárd Fiáth, Wittner Lucia, István Ulbert, György Karmos

Institute of Cognitive Neuroscience and Psychology, Research Centre for Natural Sciences, Hungarian Academy of Sciences, Budapest, Hungary

Faculty of Information Technology, Pázmány Péter Catholic University, Budapest, Hungary

P34. Thermoregulatory and motor disturbances after intrathecal injections in freely moving rats

Horvath G., [#]Safrany-Fark A., Petrovszki Z., Kekesi G., Benedek G.

Department of Physiology, [#]Department of Orthodontics and Pediatric Dentistry, Faculty of Dentistry, University of Szeged, Szeged, Hungary

P35. The Analgesic Action of P2Y₁₂ Receptor Antagonists in Animal Models of Inflammatory and Neuropathic Pain

Gergely Horváth^{1,2}, Beáta Sperlág¹

¹Institute of Experimental Medicine, Hungarian Academy of Sciences, Budapest, Hungary

²János Szentágothai School of Neurosciences, Semmelweis University, Budapest, Hungary

P36. Differential expression patterns of K⁺/Cl⁻ co-transporter (KCC2) in neurons within the superficial spinal dorsal horn of rats

Fariba Javdani^{1*}, Krisztina Holló¹, Krisztina Hegedüs¹, Gréta Kis¹, Zoltán Hegyi¹, Yu Kasugai², Yugo Fukazawa², Ryuichi Shigemoto², Miklós Antal¹

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²*Division of Cerebral Structures, National Institutes for Physiological Sciences, Myodaiji, Okazaki, Japan.*

P37. Contribution of nitric oxide to odor-elicited behavior in the snail, *Helix pomatia*. An *in vitro* and *in vivo* study

Kálmán Nacsá¹, Zoltán Veréb², Károly Elekes¹, Zoltán Serfőző^{1*}

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²*Institute of Biochemistry and Molecular Biology, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary*

P38. TNAP Activity is localized in critical Sites of retinal Neurotransmission across various vertebrate Species

Orsolya Kántor¹, Alexandra Varga¹, Tamás Kovács-Öller^{2,3}, Anna Énzsöly^{4,5}, Lajos Balogh⁶, László Négyessy^{7,1}, Béla Völgyi^{2,3}, Ákos Lukáts⁵

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⁷*Department of Theory, Institute for Particle and Nuclear Physics, Wigner Research Center for Physics, Hungarian Academy of Sciences, Budapest, Hungary*

P39. Terminations of different primary afferents on the hypoglossal motoneurons in the frog, *Rana esculenta*

Szilvia Kecskés, Klara Matesz, Andras Birinyi

Department of Anatomy, Histology and Embryology, University of Debrecen, MHSC, Debrecen, Hungary

P40. Activity and thermoregulatory changes in a new substrain of rats

Kekesi G., Petrovszki Z., Benedek G., Keri S., Horvath G.

Department of Physiology, Faculty of Medicine, University of Szeged, Szeged, Hungary

P41. PACAP enhances muscle contraction at an excitatory synapse of the snail

¹N. Krajcs, ¹L. Hernádi, ^{1,2}Z. Pirger, ²D. Reglödi, ¹Kiss, T

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P42. Temporal frequency tuning and response phase of blue-ON cells in the lateral geniculate nucleus of the cat

Kóbor, P., Petykó, Z., Buzás, P.

Institute of Physiology, Medical School, University of Pécs, Pécs, Hungary

P43. Motoneuron survival and elongative axonal growth induced by spatiotemporally restricted ex vivo BDNF/GDNF gene therapy

Gábor Márton¹, Gholam Pajenda², David Hercher³, Georg Feichtinger³, Heinz Redl³, Antal Nógrádi^{1,3}

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P44. Functional restoration after spinal cord injury from a new aspect: synchronous analyses of footprint pattern and limb motion

Gábor Márton¹, Zoltán Fekécs¹, László Gál¹, Dénes Török¹, Sándor Pintér², Antal Nógrádi¹

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² *Department of Traumatology, Albert Szent-Györgyi Clinical Centre, University of Szeged, Szeged, Hungary*

P45. Movement related cortical potentials on corticography

Tamás Molnár^{1,3}, Eröss Loránd², Daniel Fabó³

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P46. Effects of tachykinin receptor activation on prefrontal cortex neuronal activity

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P47. Neuronal responses to stationary and dynamic visual stimuli of the caudate nucleus in behaving cat.

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P48. Areal and laminar distribution of Interneurons targeted by somatosensory cortical Afferents in the non-human Primate Samiri sciureus

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P49. Effect of an AMPA receptor antagonist, Talampanel, on the calcium level of the motor nerve terminals of G93A SOD1 mutant mice

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P50. Response Characteristics of the Striatal Neurons to Visual Motion in Freely Moving Rats

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P51. The investigation of visual categorization with low and high spatial frequency modified pictures

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P52. Effect of chronic restraint stress on nociception and behaviour in mice

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P53. Sinusoidal signal propagation in layer II/III pyramidal neurons of the somatosensory cortex in wild type and Alzheimer disease related transgenic (Tg2576) mice

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P54. Distinct Patterns of Synaptic Integration in the Dendrites of Tonic Spinal Lamina I and Lateral Spinal Nucleus Neurons

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P55. Low-Threshold Afferent Driven Inhibition to Spinal Lamina I Neurons

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P56. Connexin-36 Distribution in the Cat Retina Follows the General Scheme of Other Mammalian Species

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P56a Monoacylglycerol lipase, a key regulator of nociceptive signaling, is localized within the superficial dorsal horn of the mouse spinal cord

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BEHAVIOR AND COGNITION

P57. Differential involvement of fast spiking cell populations to distinct stages of sleep spindles in unanaesthetized, freely moving rats.

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P58. Caloric-Restriction and the Hippocampus: Ultrastructural Link Between Food-Intake and Synaptic Architecture

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P59. Optogenetic stimulation of the median and dorsal raphe: effects on social behavior

Diána Balázsfi, Livia Farkas, Ibolya Till, István Barna, Dr. Dóra Zelena, Csaba Cserép, Virág Takács, Dr. Viktor Varga, Dr. Gábor Nyíri, Dr. József Haller

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P60. Cognitive Enhancement Through Stabilization of the Hippocampal Network: The Role of Alpha7 Nicotinic Receptor Mediated Mechanisms as Indexed with *in vivo* Extracellular Electrophysiology

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P61. The role of arginine vasopressin in the regulation of impulsive behavior in virgin and lactating Brattleboro rats
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P62. Structural and functional alterations of the prefrontal cortex in post-weaning social isolation induced abnormal aggression

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P63. Hemokinin-1 plays an important role in anxiety and depression-like behaviours of mice

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P64. Juxtacellular recording and labelling of prefrontal interneurons during a rule switching task in freely moving rats.

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P65. Maternal motivation and lactation are influenced by thalamic tuberoinfundibular peptide 39

Melinda Cservenák^{1,2}, Éva R. Szabó^{1,2}, Ibolya Bodnár⁴, András Lékó¹, Miklós Palkovits^{1,3}, György M. Nagy⁴, Ted B. Usdin⁵, Arpád Dobolyi^{1,2}

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P66. Feeding and metabolic consequences of IL-1 β microinjection into the cingulate cortex in the rat

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P67. The role of vasopressin released from the paraventricular nucleus of hypothalamus in stress-related behavior: studies in Brattleboro rats

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P68. Fate of Neurons in various Stages of Neurogenesis after Trauma

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P69. Examination of the Role of Reward in Consumption of Highly Palatable Food in Intrauterin Underfed Rats

Máté Durst, Katalin Könczöl, Miklós Palkovits, Zsuzsanna E Tóth, Neuromorphological Laboratory, Department of Anatomy, Histology and Embryology, Semmelweis University, Budapest, Hungary

P70. Organisation of high frequency oscillation in the human brain

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P71. Sleep spindles are modulated by network state

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P72. Effects of chronically injected neuroprotective compound on spatial memory and hippocampal dendritic spine density in APP/PS1 transgenic mice

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P73. Nootropics Prevent the Effect of Scopolamine in an phMRI Provocation Model

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P74. Streptozotocin microinjection into the cingulate cortex alters glucose tolerance in the rat

Edina Hormay, Bettina Csetényi, István Szabó, Bernadett Nagy, Barnabás Hideg, Márk Bajnok Góré and Zoltán Karádi
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P75. Cognitive enhancer effects of an alpha7 nicotinic receptor agonist (PHA-543613) in pharmacologically induced transient amnesia models in the rat

Judit Inkeller, Zolt Kristóf Bali, Roland Csurgyók, Nóra Bruszt, Hajnalka Horváth and István Hernádi.

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P76. Does intra-amygdaloid oxytocin have a pro-social effect in rhesus macaques?

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P77. The MAM-E17 rat model of schizophrenia: Behavioral examinations

Veronika Kállai^{1,2}, Rita Gálosi¹, Attila Tóth¹, Zoltán Petykó¹, Tamás Ollmann¹, László Péczely¹, Anita Kovács¹, János Kállai², Imre Szabó², László Lénárd¹

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P78. Simultaneous Electrophysiology and Ca-imaging of human cortical synchronous population activity *in vitro*

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P79. Conductance measurements of electrical fields generated by transcranial electrical stimulation (TES) in human cadavers

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P80. Application of the three hit theory in PACAP heterozygote mice: Maternal separation and chronic stress influence BNST CRF and cPEW Ucn1 in an inverse manner

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P81. Effects of intraamygdaloid microinjections of RFRP peptides on passive avoidance learning in rats

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P82. Cholinergic basal forebrain structures are not essential for the mediation of the arousing action of glutamate

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P83. Brain serotonergic mechanisms underlying abnormal aggression resulting from early social adversities

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P84. Abnormal aggression induced by early-life social adversity with a focus on acute and long-term epigenetic regulation in the medial amygdala and the medial prefrontal cortex.

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P85. Metabolic Effects of Local Microinjection of Streptozotocin into the Mediodorsal Prefrontal Cortex

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P86. The Effect of Different Hypoxic/Ischemic Stress Models on the Cortical Microcirculation – a Laser Speckle Imaging Study in Piglets.

János Németh, Dániel Zölei-Szénási, Orsolya Oláh, Valéria Tóth-Szűki, Ferenc Bari, Tomi Smausz, Ferenc Domoki

P87. Effects of neurotensin microinjection in the ventral pallidum on anxiety

Tamás Ollmann¹, Eszter Berente¹, László Péczely¹, Kristóf László¹, Anita Kovács¹, Rita Gálosi¹, Zoltán Karádi^{1, 2}, László Lénárd^{1, 2}

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P88. The role of D2 dopamine receptors of the ventral pallidum in motivational and learning processes

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P89. Region-specific adenosinergic modulation of the slow cortical rhythm in urethane-anesthetized rats

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P90. An Ascending Inhibitory Pathway from the Brainstem Synchronizes Thalamocortical Activity

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P91. Expression of primary ciliary markers in satiety centers of the brain

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P92. Circadian and homeostatic regulation of slow wave activity under ultra-short light-dark conditions in rats

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P93. Application of fear conditioning and fear extinction assay on anxious (Ax) and non-anxious (nAx) mice

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P94. Gut microbiota determines the level of anxiety in two inbred mouse strains

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P95. Single unit analysis of auditory sensory gating in the medial prefrontal cortex (mPFC) in freely moving rats

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P96. Spatial variability of cortical ripples in humans

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P97. Effect of calcium-permeable AMPA receptor alterations on expression and extinction of conditioned fear in rats

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P98. Nesfatin-1/NUCB2: a potential new Regulator in the Sleep-Wake Cycle of Rat

Vas S¹, Ádori C², Könczöl K³, Kátai Z¹, Pap D¹, Papp RS³, Nagy B¹ and Bagdy G^{1,4,5}, Palkovits M³, Tóth ZE³.

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P99. Twenty-Minute UMTS Mobile Phone Exposure does not Affect Cognitive Performance of Young Healthy Volunteers Evaluated on the Basis of the Stroop Color Word Test

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P100. Learning and memory in patients with temporal lobe epilepsy and hippocampal sclerosis

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P101. The effects of chronic stress on the composition of the gut microbiome

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P102. Orexigenic effect of QRFP-26 in the medial hypothalamus is caused by interaction with NPFF receptors.

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P102a. Spatial and temporal processing of cooperator and defector facial expressions – Event-related EEG and fMRI experiments

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P102b. Chronic stress affects the structural integrity of specific GABAergic neuronal subpopulations in the hippocampus of rats

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P102c. Changes in PACAP Levels following Environmental Enrichment in the Central Nervous System of Rats

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P102d. The effect of caffeine on delay discounting in rats

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P102e Responding to social and non-social challenges: the involvement of the hypothalamus-pituitary-adrenal-axis in 2-arachidonoyl-glycerol effects

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P102f. Nucleus Accumbens and Orbitofrontal Cortex: Endogenous and Exogenous Chemical Responsiveness of Neurons in the Rat

István Szabó, Bernadett Nagy, Edina Hormay, Bettina Csetényi, Márk Bajnok Góré, and Zoltán Karádi

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P102g Schizophrenia test battery in Brattleboro rats

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P102h The role of prefrontal cortex to lateral hypothalamus projections in abnormal aggression fotoactivating the axon terminals of PFC in lateral hypothalamus.

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P102i Blockade of CB₁ receptors and 5-HT_{2C} receptors causes opposing explorative behavior and locomotor activity effects in rats

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17 January

SYNAPTIC TRANSMISSION AND INTEGRATION

P103. Cell-type specific feed-back excitation of parvalbumin and cholecystokinin expressing inhibitory cells in the basolateral amygdala

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P104. Horizontal Spread of Low Frequency (<1Hz) Activity Induced in *in vitro* Slice Preparation of Entorhinal and Perirhinal Cortices

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P105. Observation of the correlated ganglion cell activity in the mouse retina by using Ca⁺⁺ imaging.

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P106. Morphological evidence for direct glycinergic input to cholinergic neurons in the mouse basal forebrain

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P107. Effect of median-raphe-manipulation on the hippocampal network

Domonkos Andor, Nikitidou Litsa, Szőnyi András, Balázsfi Dianna, Zelena Dóra, Nyiri Gábor, Haller József, Freund Tamás, Varga Viktor

P108. Frequency and firing pattern dependent short-term plasticity of IPSCs on perisomatic region targeting interneurons (PTIs)

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P109. Cholinergic and Endocannabinoid Neuromodulatory Effects Overlap on Neurons of the Pedunculopontine Nucleus of Mice

Éva Kókai, Dénes Nagy, Adrienn Kovács, Áron Kőszeghy, Balázs Pál

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P110. Synaptic targets of GABAergic fusiform cells in the primary visual cortex of the cat.

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P111. Synapses Established by the Median Raphe Contain Glutamate Receptors in the Mouse Forebrain

Márton Mayer, András Szőnyi, Tamás F. Freund, Gábor Nyiri

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P112. Different availability of potassium currents distinguishes two functionally distinct populations within CCK-expressing perisomatically-targeting interneurons in the CA3 area

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P113. Influence of P2X7 Receptor on Spine Synapse Density in the Dentate Gyrus

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P114. Anatomically diverse populations of CB₁ receptor-expressing interneurons provide similar GABAergic control along the somato-dendritic axis of CA3 pyramidal cells

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P115. Synapse-Specific Distribution of Neuroligin-2 in the Hippocampus

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P116. Pharmacogenetic manipulation of odour discrimination in freely moving mice

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P117. Strategically positioned inhibitory synapses of axo-axonic cells potently control spiking of amygdalar principal neurons

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P118. Abundance of D-aspartate in regions of different proliferative activity in postembryonic chick brain.

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P119. The Cannabinoid Receptor 1 Antagonist Rimonabant Directly Inhibits Delta Opioid Receptor Specific Ligand Binding and Agonist-stimulated G-protein Activity

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P119a. Possible role of parvalbumin-positive interneurons in epileptiform events

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P119b. The role of the GAD67 in the gamma oscillations

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P 119c. Patterns of sharp-wave ripple complexes in the rat hippocampus in vitro

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NEUROENDOCRINOLOGY

P120. The effect of urocortin I on the hypothalamic ACTH secretagogues

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P121. Age-related central leptin-resistance in different nutritional states

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P122. Characterization of the thermoregulatory response to pituitary adenylate cyclase-activating polypeptide

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P123. Changes of lysyl-oxidase expression in myenteric ganglia in different gut segments of streptozotocin-induced untreated and insulin-treated diabetic rats

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P124. Molecular Requirements of Ubiquitination Mediated Regulation of Thyroid Hormone Activation via Type 2 Deiodinase

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P125. Effect of Endocrine Disruptor Compound Zearalenone on Hypothalamic Neuropeptide Gene Expression

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P126. Melanocortin system in the regulation of energy homeostasis in SHR rats

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P127. Investigation of nesfatin-1 action on thermoregulation

Katalin Könczöl¹, Máté Durst¹, Szilámér Ferenczi², Miklós Palkovits¹, Dóra Zelena², Krisztina Kovács², Zsuzsanna E. Tóth¹

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P128. Effects of alarin on the thermoregulation of rats

Alexandra Mikó¹, Péter Balla¹, Nóra Füredi¹, Márta Balaskó¹, Susanne Brunner², Barbara Kofler², Erika Pétervári¹

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P129. Interleukin-1 β (187-207)-induced hyperthermia is inhibited by interleukin-1 β (193-195) in rats

Miklós Palotai¹, Edina Kiss¹, Zsolt Bagosi¹, Miklós Jászberényi¹, Gábor Tóth², Györgyi Váradi², Gyula Telegdy^{1,3}

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P130. Reversal of age related learning deficiency by the vertebrate pituitary adenylate cyclase activating polypeptide (PACAP) in *Lymnaea*

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P131. The Fractalkine/Cx3CR1 System is Implicated in the Development of Metabolic Visceral Adipose Tissue Inflammation in Obesity

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P132. The mechanisms of induction of amylin in the maternal preoptic area

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P133. 3-D reconstruction of the distribution of melanin-concentrating hormone producing neurons in the mouse hypothalamus.

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P134. Central catabolic effects of leptin during the course of aging

Ildikó Rostás, Péter Novinszky, Judit Tenk, Szilvia Soós, Miklós Székely, Erika Pétervári, Márta Balaskó

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P135. Impact of ovarian hormone deficiency and subsequent treatments with estrogen receptor agonists on the innate immune system of the hippocampus in middle-aged female rats

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P136. Colocalization of cocaine and amphetamine regulated transcript with kisspeptin and neurokinin B in the human infundibular region

Katalin Skrapits¹, Beáta Á. Borsay², László Herczeg², Philippe Ciofi³, Stephen R. Bloom⁴, Mohammad A. Ghatei⁴, Waljit S. Dhillo⁴, Zsolt Liposits^{1,5} and Erik Hrabovszky¹

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P137. Age-associated alterations in the acute central effects of corticotropin-releasing factor (CRF) on energy balance

Judit Tenk, Tamás Rimai, Eszter Varga, Ildikó Rostás, Szilvia Soós, Miklós Székely, Márta Balaskó
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P138. Differential Gene Expression in the Male and Female GnRH Neurons

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P139. Neuronal connections of the central amygdaloid nucleus with refeeding-activated brain areas

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P140. Association of afferent and efferent connections of the parabrachial nucleus (PBN) with refeeding-activated brain areas

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P141. Mitochondrial metabolic lateralization in the rat hypothalamus.

Kiss Dávid Sándor, Tóth István, Jócsák Gergely, Bartha Tibor, Frenyó V. László, Attila Zsarnovszky
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P142. Effects of estrogen, thyroid hormones and Bisphenol A on the regulation of estrogen- and thyroid hormone receptor expression in the developing cerebellum.

Tóth István, Kiss Dávid Sándor, Jócsák Gergely, Bartha Tibor, Frenyó V. László, Attila Zsarnovszky
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P142a Low Concentration of 17 β -Estradiol Decreases Frequency of Postsynaptic Currents in GnRH Neurons of Metestrous Mice via Endocannabinoid Signaling

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DEVELOPMENTAL NEUROBIOLOGY

P143. Localization of glutamine-synthase positive cells in the developing subventricular zone

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P144. Development of GABA-erg neurons in the mouse superficial dorsal horn

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P145. Organization of extracellular matrix in the brainstem of chicken embryo

András Birinyi, Botond Gaál, Éva Rácz, Szilvia Kecskés, Klára Matesz

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P146. Apoptotic effects of the 'designer drug' methylenedioxypropylamphetamine (MDPV) on the neonatal mouse brain

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P147. Migratory pathways and morphological maturation of neurons populating the superficial spinal dorsal horn

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P147a. Morphological Consequences Of Intravitreal PACAP Injection In The Developing Rat Retina

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DISORDERS OF THE NERVOUS SYSTEM

P148. Myelination is impaired in the human hippocampal formation in Down syndrome

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P149. Pituitary Adenylate Cyclase-Activating Polypeptide (PACAP) Prevents Monosodium Glutamate (MSG) Induced Functional Disturbances in the Mouse Retina

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P150. Grafted neuroectodermal stem cells rescue damaged rat retinal ganglion cells otherwise destined to die

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P151. The effects of nNOS inhibitor, N^w-propyl-L-arginine (L-NPA), pre-treatment on early latent period of epileptogenesis in a kainic acid mouse model of epilepsy.

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P152. Evoked high frequency oscillations in the human hippocampal formation

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P153. Mycobacterium avium chronic infection induces alterations in the hippocampal cytokine

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P154. Effect of exogenous PACAP on ischaemia-reperfusion induced kidney injury

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P155. Changes in Brain Histone Acetylation might underlie anxious phenotype

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P156. Antipsychotic Drug-Candidate Egis-11150: Pro-Cognitive Efficacy in NMDA-Antagonist Preclinical Models and Facilitation of Hippocampal Neuronal Plasticity.

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P157. Evaluation of bilaterality in temporal lobe epilepsy

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P158. Ultrastructural Changes in the Hippocampus of G72 Gene-expressing Animal Model of Schizophrenia

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P159. Neurotoxic effect of oligomerised β -amyloids ($\alpha\beta$ A): suitability as a pharmacological screening assay

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P160. Investigation of sex differences in major depression using the active escape paradigm in rats

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P161. Neuroprotective effect of the total flavanones from *Iris tenuifolia* against oxidative stress-induced cell death through the activation of phosphorylation of mitogen-activated protein kinase

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P162. Cortico-cortical evoked potentials in the seizure onset zone

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P163. Uridine Modulates Neuronal Activity and Inhibits Spike-Wave Discharges of Absence Epileptic Rats

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P164. Gap Junction Blockade and PACAP Administration Can Prevent Vascular Changes in Retinopathy of Prematurity

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P165. Global optogenetic activation of inhibitory interneurons effectively suppresses epileptiform activity

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P166. Role of nitric oxide in trigeminovascular activation of mice

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P167. Imaging neuroinflammation in the ischaemic brain with high speed two photon microscopy in vivo

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P168. Effects of Arctigenin In Seizure Induced ex vivo Brain Slice Preparations

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P169. Microspikes on intracortical microelectrode recordings – a tuberous sclerosis case report

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P170. Expression of receptors of transforming growth factor beta proteins following focal ischemia in the rat brain

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P171. Multi-phase translational research with epilepsy patients

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P172. De-novo Expression of Parvalbumin in Ependymal Cells in Response to Brain Injury Promotes Ependymal Niche Remodeling and Wound Closure

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P173. Imaging central and systemic inflammation after cerebral ischaemia in vivo, using SPECT/CT in mice

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P174. Changes of the pyramidal cells in the primary motor cortex of schizophrenia patients

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P175. Alleviated mucosal and neuronal damage at the acute phase of recurrent inflammation in a rat model of Crohn's disease

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P176. A murine passive transfer-trauma model for Complex Regional Pain Syndrome (CRPS) clinical signs

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P177. Tracking the journey of Shadoo from translation to the nucleus

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P178. Changes in the Distribution of Citrate Synthase in Hippocampi of Patients with Temporal Lobe Epilepsy

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P179. The epigenetic background of Brattleboro rats' schizophrenia-like behavior

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P180. Distinct set of receptors mediates evoked fEPSPs and spontaneous spiking: selective effect of amyloid-beta (1-42)

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P181. Investigating the Retinoprotective Effects of PACAP Fragments, Secretin and Glucagon in Ischemic Retinopathy

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P181a. Proteomic investigation of the amygdala in the Clomipramine model of depression

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P181b. Patterns of synchronous population activity in the neocortex of patients with epilepsy or tumour, in vitro

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METHODS

P182. Examination of pituitary adenylate cyclase activating polypeptide-like immunoreactivity in human dental pulp samples

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P183. A rapid and efficient approach for cell type- and compartment-specific quantitative molecular imaging using STORM super-resolution microscopy

László Barna^{1*}, Barna Dudok^{1*}, Szilárd I. Szabó¹, Eszter Szabadits¹, Balázs Pintér¹, Stephen G. Woodhams¹, Christopher M. Henstridge¹, Gyula Y. Balla¹, Rita Nyilas¹, Csaba Varga², Sang-Hun Lee², Máté Matolcsi³, Judit Cervenak⁴, Imre Kacs Kovics⁴, Masahiko Watanabe⁵, Miriam Melis⁶, Marco Pistis⁶, Ivan Soltesz² and István Katona¹

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P184. Nanostructured Si Surfaces for Neural Application

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P185. Two-dimensional, high-resolution current-source density analysis of neuronal action potentials

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P186. Feasibility of dynamic stereovision tests in amblyopia screening

Zsófia Csizék¹, Diána Fülöp¹, Vanda Nemes¹, Anna Budai¹, Eszter Mikó-Baráth¹, Francesca D'Orlando², Grazia Caporusso², Tiziano Agostini², Gábor Jandó¹

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P187. withdrawn

P188. FcRN transgenics as a novel method for generating superior CB₁ cannabinoid receptor antibodies

Gyula Y. Balla¹, Judit Cervenak², Barna Dudok¹, Christopher M. Henstridge¹, Eszter Szabadits¹, Szilárd I. Szabó¹, Marco Ledri¹, László Barna¹, Imre Kacs Kovics², István Katona¹

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P189. An implantation method of Pt/Ir microwires for chronic neural recording from the orbitofrontal cortex of freely moving mice.

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P190. Fast three-dimensional imaging of neuronal assemblies in the mouse visual cortex using genetically-encoded neuronal indicators and two-photon microscopy

Judák, L.^{1*}, Szalay, G.¹, Katona, G.¹, Maák, P.², Veress, M.², Kaszás, A.^{1,3}, Spitzer, K.¹, Chiovini, B.¹, Pálfi, D.^{1,3}, Hiller, D.⁴, Roska, B.⁴, Rózsa, B.^{1,3}

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P191. Optrode for multimodal deep-brain optical stimulation
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P192. A Novel Methodology for Identifying Low-Threshold Afferent Driven Inhibitory Neurons in the Spinal Dorsal Horn
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P193. Robust silicon-based microelectrode arrays and a microdrive system for in vivo electrophysiology
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P194. Probing identified synapses at the nanoscale: developing software tools for visualization and analysis of correlated confocal- and STORM super-resolution microscopy
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P195. Imaging mass spectrometry of the brain of pacap deficient and wild-type mice

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P196. Quantitative in vivo imaging in brain science

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P197. In vivo Multiphoton Microscopy of Gliovascular Reactions: a Preliminary Study

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P198. Body Doubles in the stage of PCR cloning: A general use of Type IIS Restriction Enzymes for cloning

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P199. Electrophysiological Correlates of Letter Spacing in Natural Reading

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P200. A Novel EEG Processing Framework for Analyses of Background and Event-Related Brain Activities Related to Senso-Motoric Processes

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P200a. Analyzing dendritic spine movement in cultures: a fast and effective way to identify regulatory pathways influencing spine motility and maintenance

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P200b. Determination of cortical and synaptic layers and synaptic dynamics based on extracellular multi-electrode potential measurements

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List of participants

Abbreviations:

PL: Plenary Lecture
S: Symposium
P: Poster

Ábrahám, H. P148
Ackert J. P164
Ács P. P91
Acsády L. P32, P71, P90
Adachi N. P161
Ádám Á. P146
Adam-Vizi V. P18.
Ádori C. P98
Adorján I. P143, P197
Agostini T. P31, P186.
Aliczki M. P61, P102e
Ambrus A. P18.
Andrási T. P103, P112
Antal M. P5, P8, P19, P27, P36, P144, P147
Antal Zs. P19, P54
Antoni F. P11, P156, P159
Ashaber M. P48.
Atlasz T. P149, P164, P181
Aubrecht B. P126
Averkin R. P47, P57, P189
Baba A. P28.

Babits R. P58.
Bagdy G. P98, P102i
Bagó A. P181b
Bagoly T. P12, P14, P176
Bagosi Zs. P120, 129
Bagyánszki M. P123, 175
Bajnok Góré M. P66 P74, P85, P102f
Baka J. P160
Bakos N. P102g
Bakk E. P5, P27
Balaskó M. P121, P128, P134, P137
Balázs A. P144, P147
Balázs R. P3.
Balázsfi D. P59, P67, P102h, P107,
Bali Zs. P60, P75, P163
Bálint F. P142a
Balla P. P128
Balogh A. P80
Balogh L. P38.
Balogh M. P105, P149
Balogh V. P104
Balogh Z. P61.
Banki E. P122
Baracska P. 193.
Baranyi M. P20.
Bardóczy Zs. P106
Bari F. P86
Barna I. P59, P183, P188, P194
Barsvári B. P83

Barta B. P21.
Bartha T. P141, P142
Barthó P. P71.
Beamer E. P151
Becker Th. S5
Belelli D. P156
Bellák T. P22.
Bencsik N. P200a
Bencsura P. P198.
Bendotti C. P49.
Benedek Gy. P23, P34, P40, P47
Benkő Zs. P200b
Benyhe S. P15, P119
Bérces Zs. P184.
Bereczkei, T. P102a
Beregszászi P. P185.
Berente E. P87
Berenyi A. P47, P50, P79, P200b
Berger A. P63.
Berkecz R. P4.
Bernard C. P17.
Berta G. P147a.
Bihari Z. P94
Birinyi A. P39 P145
Biró L. P62 P83, P84
Bíró T. P8.
Biro Zs. P181.
Blanpied Th. S12
Bloom S. P136

Bloomfield S. P149
Bódi N. P123
Bodnár G. P80
Bodnár I. P65.
Bodnar M. P192.
Bogáthy E. P102i
Bokodi V. P152
Bokor H. P32, P90
Borbély É. P63, P72, P93, P176
Borbély S. P104, P168
Bordás Cs. P1, P7
Borhegyi Zs. P64.
Borsay B. P136
Borsodi A. P15, P119
Bozsó Zs. P180.
Branco C. P153
Braunitzer G. P23.
Brinyiczki K. P79
Brunner J. P2
Brunner S. P128
Bruszt N. P60, P75
Bruzsik B. P62, P102h
Budai A. P186.
Budai D. P60.
Buzás P. P42 P56
Buzsáki G P79, P200b
Cabaj A. M. P24.
Calçada D. P153

Caporusso G. P186.
Cash S. P70.
Celio M.R. P172.
Cervenak J. P183, P188
Chiovini B. P3, P17, P78, P190
Ciofi P. P136
Conde-Sousa E. P54.
Copploe J. P46.
Correia-Neves M. P153
Czéh Á. P125
Czéh B. P102b
Czett A. P122
Czirják L. P178.
Czurkó A. P181a
Csabafi K. P120
Csákvári E. P160
Cservenák M. P65, P132
Csetényi B. P66, P74, P85, P102f
Csifcsák G. P51.
Csikota P. P67.
Csillag A. P118, P146
Csizek Zs. P186.
Csölle C. P25.
Csurgók R. P60, P75
Dattani A. P29.
Dávid Cs. P48.
Dávid Sz. P73.
De Tommaso M. P31.

Deak, A. P102a
Deák É. P26
Debertin G P105, P149
Degrell P. P154
Deli L. P73.
Deme R. P14.
Demeter K. P68.
Dénes Á. P131, P167, P173
Dénes V. P147a
Détári L. P89, P92
Dhilló W. P136
Diana M. A. P90
Dieckman L. P76.
Dieudonne S. P90
Dobolyi A. P65, P132, P163, P170
Dobos N. P160
Dócs K. P27 P144
Domoki F. P86
Domonkos A. P9 P107
D'Orlando F. P186.
Ducza L. P27.
Dudok B. P183 P188, P194
Durst M. P69 P127
Dux M. P26.
Dvoracsko Sz. P4.
E Tóth Zs. P69.
Egri P. P124
Elekes K. P37.
Engelmann M. P67.

Entz L. P96, P162, P169, P171, P178, P181b
Énzsöly A. P38.
Erdei O. P192.
Erőss L. P45, P96, P152, P157, P169, P171, P178, P181b, P192
Ertl T. P164
Estrada C. P17a
Eszik I. P94, P155, P179
Etherington L. P156
Fabó D. P45, P70, P96, P100, P152, P157, P162, P169, P171
Faradzs-zade L. P71.
Farkas I. P142a, P138
Farkas J. P28, P80
Farkas L. P59.
Farkas S. P166
Feichtinger G. P43.
Fekécs Z. P44, P150
Fekete Cs. P21 P139, P140
Fekete É. P123, P175
Fekete Z. P184, P191, P193
Feldmann Á. P95
Ferenc K. P200a
Ferenczi SZ. P83, P84, P101, P125, P127, P131
Ferragutti F. S1
Fiáth R. P33, P185, P193
Fodor A. P61, P67, P102g, P179
Földesi I. P120
Frenyó L. P141, P142
Freund T. P9, P107, P108, P111, P115, P119a, P158, P181b

Friedman R. P48.
Frischknecht R. S16
Fukazawa Y. P36.
Furdan Sz. P72.
Fülöp A. P119b
Fülöp B. P28.
Fülöp D. P186.
Fülöp L. P72, P93.,P94, P180
Füredi N. P126, P128
Gaál A. P156
Gaál B . P29, P156
Gábor H. P31.
Gábor J. P31.
Gábrriel R. P17a, P28, P147a, P181
Gacsályi I. P156
Gajári D. P73.
Gajtkó A. P5.
Gál L. P30, P44
Gálosi R P77, P87, P88, P95
Garami A. P122
Gardi J. P120
Gaspar L. P80
Gaszner B. P52 P80, P126, P166, P195
Gaszner T. P80
Gellén B. P181a
Gereben B. P124
Gerecsei L. P146
Gerics B. P133
Ghatei M. P136

Giber K. P90
Giricz Zs. P123
Goebel A. P176.
Gombkoto P. P47.
Gothard K.M. P76.
Gösi E. P159
Gulyás A. P108, P119a
Gulyás M. P200a
Gulyácssy P. P181a
Gyarmati J. P164
Gyertyán I. P25, P102d
Györffy B. P181a
Hadinger N. P32.
Hajna Zs. P63, P176
Hajnal B. P157
Hajnik T. P92
Hajos N. P103, P108, P114, P117
Hajszán T. P160
Halász P. P157, P178
Hallapy J. P46.
Haller J. P59, P61, P62, P68, P83, P84, P97, P101, P102e, P102h
Hámornik G. P159
Hani E. P182.
Harkány T. PL4
Hashimoto H. P28, P122, P195
Hausser A. P200a
Havas L. P174.
Hegedűs K. P5, P27, P56
Hegedűs N. P73.

Hegedüs P. P115, P158
Hegyi Z. P8, P27, P36, P144
Héja L. P119c
Helyes Zs. P12, P14, P52, P63, P166, P176
Henstridge Ch.M. P56a, P183, P188
Herberth B. P159
Hercher D. P43.
Herczeg L. P136
Hermesz E. P123
Hernádi I. P60, P75, P99, P102a, P163
Hernádi K. P181a
Hernádi L. P41.
Herrero M.T. P17a,
Hideg B. P66, P74
Hiller D. P190.
Hofer K. P119c, P181b
Holló K. P5, P27, P36
Hormay E. P66, P74, P85, P102f
Horváth I. P173.
Horváth A. P194.
Horvath Cs. P166
Horváth D. P33.
Horváth E. P56a
Horvath G. P34, P35, P40,
Horvath G. P102c
Horváth H. P60, P75
Horváth I. P196
Horváth J. P72, P94, P155, P189

Hrabovszky E. P135, P136
Huszár K. P198.
Huzián O. P160
Inkeller J. P60 P75
Iványi B. P79
Jacobowitz S. P46.
Jakó Z. P118
Jalics, J. P46.
Jalsrai A. P161
Janacsek K. P100
Jancsik V. P133
Jancsó G. P26.
Jancsó Zs. P123
Jandó G. P186.
János Körmendi J. P200
Jászberényi M. P120, P129
Javdani F. P36.
Jócsák G. P141, P142
Jóhannesson E.Ö. P29.
Judák L. P190.
Juhász G. P119b, P163, P180, P193
Juhász G. P181a
Jurányi Zs. P156, P159
K. Tóth P78
Kacskovics I. P183, P188
Kalangyáné Varga Zs. K. P102b
Káli Sz. P3.
Kállai J. P77,

Kállai V. P77, P95
Kalló I. P106, P135
Kálmán M. P143, P197
Kandrács Á. P181b
Kántor O. P38, P48
Kapus G. P11.
Karádi K. P95
Karádi Z. P66, P74, P85, P87, P88, P95, P102f
Karlócai M. P108
Karmos Gy. P33.
Kano M. P56a
Karlócai M.R. P119a
Karoly R. P16.
Kasugai Y. P36.
Kaszás A. P3, P17, P78, P190
Kátai Z. P98
Katarova Z. P119b
Katona G. P3, P13, P17, P190
Katona I. S13, P56a, P183, P188, P194
Katonai Z. P53.
Kecskés Sz. P29, P39, P145
Keeble J. P63.
Kekesi G. P34, P40
Kékési K. A. P181a
Kelemen A. P157
Kemenes G. P130
Kemenes I. P130
Kemény Á. P176.
Kerekes B P78,

Keresztes A. P4.
Keri S. P40.
Kéri Sz. P23.
Király K. P21.
Kirik D. P165
Kirizs T. P6.
Kis G. P36.
Kisfali M. P10.
Kis-Petik K. P197.
Kiss D. P141
Kiss E. P129
Kiss M. P191.
Kiss P. P28, P102c, P154, P164, P181, P195
Kiss S. P142
Kiss, T. P41.
Kisvárdy Z. P110
Kittel Á. P113
Klausberger Th. P64.
Klausz B. P97, P102g
Knakker B. P199
Kóbor P. P42, P56
Kocsis D P119
Kocsis K. P185.
Kocsis P. P73, P150
Kofler B. P128
Kohus Zs. P108
Kókai.É. P1, P7, P109
Kokaia M. P165

Komoly S. P91
Kondákor B. P162
Konnerth A. PL3
Kormányos Á. P79
Kormos V P80, P166
Kostyalik D. P102i
Kovács A. P7, P8, P77, P81, P87, P88, P102, P109, P192
Kovács F. P162
Kovács G. P119, P159
Kovács G. L. P102b
Kovács K. P125, P127, P131
Kovács KJ. P101
Kovács L. P80
Kovács N. P173, P196
Kovács P. P163
Kovács Zs. P163
Kovacs-Balint, Z. P102a
Kovács-Öller T. P38, P105
Kozsurek M. P21.
Könczöl K. P69, P98, P127
Körmendi J P200
Kőszeghy Á. P1, P7, P8, P109, P192
Krajczár K. P182.
Krajcs N. P41.
Kravják A. P148
Kriszt R. P125, P131
Kulcsár P.I. P177, P198
Kunugi H. P161
Kvarik T. P164, P181

Lagler M. P64.
Lambert J. P156
Larry J. S7
László E. P152, P154
László K. P76 P81, P87, P88, P102
Laszlovszky T. P9.
Lechan R. P139, P140
Ledri M. P165, P188
Lee S-H. P183.
Lékó A. P65.
Lelesz B. P102c
Lelkes Z. P82,
Lénárd L. P77, P81, P87, P88, P95, P102
Lenkey N. P16.
Lepesi N. P146
Liposits Zs P106, P135, P136, P138, P142a
Lódi M. P110
Loke J P174.
Long J. P200b
Lopez D. P17a
Losonczy A. S4
Lőrincz A. P6, P116
Lőrincz T. P10.
Lukácsi E. P21.
Lukáts Á. P38.
Luz L. P19, P55
Luz L. P55.
M. Nagy Gy. P65.

Maák P. P3, P17, P190
Maasz G. P195
Madarász M. P3.
Madsen M. P165
Maglóczky Z P152, P174, P178
Malagon-Viña H. P64.
Maléth J. P22.
Mammel B. P164
Marco C. S2
Mark L. P195.
Markó B. P159
Markovics A. P166, P176
Martinecz B. P167
Márton G. P30, P43, P44, P193
Martonosi Á. P26
Máté Z. P114
Matesz K. S17, P29, P39, P114, P145
Máthé D. P173, P196
Máthé K. P95
Matolcsi M. P183.
Mátyus P. P14.
Mayer M. P111
Megyeri K. P156
Mehta A. P162
Melis M. P183.
Mészár Z. P144, P147
Miczán V. P194.
Mihalik A. P195.

Mihalik B. P11, P159
Mike A. P16.
Mikics É. P62, P83, P84, P102e
Mikó A. P126, P128
Mikó-Baráth E. P186.
Miseta A. P102b
Miskolczi C. P83, P84
Moldován K. P168
Mollica A. P15.
Molnár T. P45.
Monteiro S. P153
Morawski M. S14
Murakami F. P147
Murgia M. P31.
Müller G. P93, P94, P155
Nabi L. P63.
Nacs K. P37.
Nagerl V. S11
Nagy A. P23, P47, P50
Nagy B. P66, P74, P85, P98, P102f
Nagy D. P109
Nagy G. P117
Nagy L.I. P175.
Nagy P. P121
Nagy R. P17.
Nagy T. P23.
Nagy Z. P200
Nagypal T. P47.

Nánási T. P169
Naskar S. P130
Négyessy L. P38, P48
Nemes V. P186.
Németh A. P28.
Németh D. P100
Németh J. P86, P102c, P182
Nikitidou L. P9, P107, P165
Nikolett Bódi¹
Nitschke R. P48.
Nógrádi A. P22, P43, P44, P150
Norbert H. S3
Novinszky P. P134
Numakawa T. P161
Nusser Z. P6, P116
Nyeste A. P177, P198
Nyilas R. P 56a, P183.
Nyíri G. P9, P59, P107, P111, P115, P158
Nyisztor Zs. P147a
Nyitrai M. P56.
Oláh L. P1, P7
Oláh O. P86
Oláh V. P112
Ollmann T. P77, P81, P87, P88
Orbán J. P56.
Otrokocsi L. P113
Őze A. P23.

Paige Ch.J. P63.
Paizs M. P49.
Pajenda G. P43.
Pajer K. S9,P22, P150
Pakai E. P122
Pál A. P123, P175
Pál B. P1, P7, P8, P109
Pál I. P119c
Palfi A. P192.
Pálfi D. P3, P17, P190
Pálfi E. P48.
Pálfy D P78
Palha J. P153
Palkovits M. P65, P69, P98, P127
Pallagi K. P11.
Palotai M. P120, P129
Pálvölgyi A. P11, P159
Pap D. P98
Papp H P174.
Papp L. P11, P189
Papp O. P114
Papp, P. P102a
Papp RS. P98
Parkash P. P122
Patai R. P49.
Pataki Á. P159
Payrits M. P12, P14
Péczely L. P77, P81, P87, P88
Pelsőczy P. P102d

Penke B. P72, P180
Pétervári E. P121, P126, P128, P134
Pethő M. P89
Petrovszki Z. P34, P40
Petschner P. P102i
Petykó Z. P42, P77, P95
Pfizenmaier K. P200a
Pintér B. P183.
Pintér E. P52, P63
Pintér O. P67, P102e
Pintér S. P44.
Pintér-Kübler B. P131
Pirger Z P41, P130
Pirger Zs. P195.
Pistis M. P183.
Plattner V. M. P90
Poles M. P123, P175
Polyák Á. P131
Pongrácz A. P184, P193
Porkka-Heiskanen T. P82
Pósfai B. P115, P158
Pozsgay Z. P73.
Prpic V. P31.
Puskár Z. P21.
Puskás L.G. P175.
Puskas T. P47, P50, P79
Pusztai A. P23.
Quinn J. P63.

R. Szabó É. P65.
Rácz B. P58, P117
Rácz É. P29, P145
Rásonyi G. P178.
Rauvala H. S15
Ravasz L. P119b
Redl H. P43.
Reglódi D. P17a, P28, P41, P102c, P122, P130, P149, P154, P164, P181, P182, P195
Reinitz L. P133
Rimai T. P137
Rivnyak A. P195
Rizzolatti, G PL1
Rodrigues B. P153
Roe A. P48.
Rokszin A. A. P51.
Roque S. P153
Ros C.M. P17a
Roska B. P190.
Rostás I. P121, P134, P137
Roux L. P200b
Rózsa B. P13, P17, P78, P167, P190
Rózsa M. P13.
Safrany-Fark A. P34.
Safronov B. P19, P55
Sághy É. P12, P14
Sakimura K. P56a
Samavati R. P15.
Sándor B. P182.

Sárvári M. P135, P138
Scheich B. P52.
Schlett K. P200a
Schlingloff D. P119a
Schmidt J P195.
Semjéni M. P173, P196
Seress L. P148
Serfőző Z. P37.
Sétáló Gy. Jr P17a
Shigemoto R. P36.
Shiva K. P21.
Sigrist S. S10
Siklós L. P49, P160
Sills G. P151
Simor A. P181a
Sipos E. P62, P83, P84, P91, P102h,
Skrapits K. P136
Sławińska U. S6, P24, P30
Slézia A. P163
Smausz T. P86
Soltesz I. P183.
Solymosi N. P135, P138
Somogyi A. P53.
Somogyi P. P110
Somogyvári Z. P200b
Soós Sz. P121, P134, P137
Sorum E.B. P171.
Sós K.E. P10.
Sótonyi P. P58, P133

Sousa M. P54, P153
Spedding M. P156
Sperlágh B. P20, P35, P113
Spitzer K. P17, P78, P190
Stefanics, G. P102a
Sümegi M. P116
Szabadfi K. P17a, P28, P180
Szabadics J. P2, P112
Szabadits E. P158, P183, P188
Szabó A. P118
Szabó Á. P88
Szabo AK. P16.
Szabó C. P181b
Szabó Cs. P119c
Szabó E. P101
Szabó É. P132
Szabó G. P3, P114, P119b
Szabó Gy. P120
Szabó I. P66, P74, P77, P85, P95, P102f
Szabó Sz.I. P183, P188
Szabó T. P62.
Szabolcsi V. P172.
Szadai Z. P3.
Szakaly P. P154
Szalay G. P3, P17, P78, P154, P167, P190
Szalontai B. P28, P80
Szalontai Ö. P92
Szántai Á. P93

Szántó I. P182.
Szantó Z. P182.
Szegedi V. P93, P94, P155, P179, P180
Székely M. P121, P134, P137
Szemenyei V. P57.
Szente L. P62.
Szigeti K. P173, P196
Szikra T. P163
Szocsics P. P174.
Szolcsányi J. P12, P63, P176
Szőke B. P133
Szőke É. P12, P14
Szőke Zs. P125
Szökő É. P118
Szőnyi A. P107, P11
Szucs I. P174.
Szücs P. P1, P7, P19, P54, P55, P192
Tábi T. P118
Tajti J. P166
Takács V. P59, P115
Talapka P. P123, P175
Tamás A. P17a, P28, P102c, P122, P154, P181, P195
Tamás G. P13, P57
Tamás T. P182.
Tárnok K. P200a
Tarragon E. P17a
Tékus V. P52, P63, P176

Telegdy Gy. P120, P129
Telkes I. P56.
Tenk J., P121, P134, P137
Thippeswamy T P151.
Thompson V. P176.
Thuróczy Gy. P99
Tihanyi K. P73.
Till I. P59.
Todorov M. P119b
Tomboly Cs. P4.
Tortarolo, M. P49.
Tóth A. P77, P89, P92, P95
Toth E. P96, P152, P162, P177, P178, P198
Toth G. P122, P129, P181
Tóth I. P141, P142
Tóth K. P181b
Tóth L. P197.
Tóth M. P62.
Tóth Sz. P198.
Tóth ZE. P98
Tóth Zs. P127
Tóth-Szüki V. P86
Török B. P179.
Török D. P44.
Trunk, A. P102a
Tuka B. P166
Tulogdi Á. P83
Turi G. F. P3.

Ulbert I. P33, P70, P78, P96, P97, P119c, P152, P162, P169, P171, P181b, P185, P193,
Urbán E. P97
Usdin T.B. P65.
Vajda G. P178.
Váradi Gy. P129
Varga A. P38, P154
Varga Cs. P183.
Varga E. P137, P180
Varga E.V. P4.
Varga J. P97, P102g
Varga K.Z. P102e
Varga V. P9, P59, P97, P107
Vas S. P98
Vastagh Cs. P138
Vecsei Zs. P99
Végh M. P11.
Venczkone Bakos N. P102e
Veréb Z. P37.
Vereczki V. P117
Veres D.S. P173, P196
Veres J. P103, P117
Veress M. P17, P190
Vida B. P139, P140
Vidnyánszky Z. P199
Világi I. P104, P168
Vinay L. S8
Vincze P. P52.
Virág M. P100

Virók D. P94
Vizi E.S. P10.
Vodicska B. P177, P198
Völgyi B. P38, P56, P105, P149
Völgyi K. P181a
Vöröslakos M. P79
Wagner Zs. P118
Watanabe M. P56a, P106, P183
Weiss B. P199, P200
Welker E. P177, P198.
Welker Zs. P198.
Werling D. P149, P164, P181
Wiborg O. P102b
Winkler Z. P101
Winkler Zs. P131
Wittner L. P33, P78, P119c, P171, P181b
Wolf E. P53.
Womble M. P46.
Woodhams S.G. P56a, P183.
Záborszky L. P106
Zachar G. P118
Zádor F. P15, P119
Zagoracz O. P81, P102
Zeilhofer H.U. PL2
Zelena D. P102e, P102g, P102h
Zentai N. P99
Zhang Y. P149
Zimmerman P.E. P76.

Zölei-Szénási D. P86
Zsarnovszky A. P141, P142
Zséli G. P140
Zséli Gy. P139
Zsiboras Cs. P122